

Office Action Summary

Application No.
09/009,320

Applicant(s)
Arquilevich et al

Examiner
Frederick E. Cooperrider

Group Art Unit
2723



- ☐ Responsive to communication(s) filed on _____
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

- ☒ Claim(s) 1-24 is/are pending in the application.
- Of the above, claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-24 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claims _____ are subject to restriction or election requirement.

Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- ☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
- ☐ received.
- ☐ received in Application No. (Series Code/Serial Number) _____.
- ☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

- ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- ☒ Notice of References Cited, PTO-892
- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☐ Interview Summary, PTO-413
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Claim Objections

1. Claims 4, 9, 11, 12 are objected to because printing the print job onto a media sheet is not a step in the calibration method or method for determining a normal value for a linefeed error adjustment parameter.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 22 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The specification does not disclose a sensor that detects media type, using the ordinary meaning of the term.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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5. Claims 1-4,6,7,9-15, 18-24 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 5,592,202 to Erickson.

Regarding claims 1 and 7, Erickson teaches a method for calibrating a print control parameter to avoid a banding artifact on a printed media sheet, comprising the steps of: printing on a media sheet a test plot having a plurality of areas (figure 13, also see column 17 beginning at line 13), each area being a common image printed using a different value of the print control parameter (column 17 lines 14-18, also column 18 line 11); receiving an input indicating which one area of the plurality of areas exhibits either the absence of or the least amount of the banding artifact (ie, column 17 lines 55-59) as perceived by a person viewing the media; and setting the print control parameter to the value corresponding to the indicated one area.

Regarding claims 2 and 3, Erickson additionally teaches linefeed error adjustment (column 18 line 11) and swath height error adjustment (column 3 line 20).

Regarding claims 4,6,9-12,18-24, Erickson additionally teaches taking into account different media (column 7 line 34-35).

Regarding claims 13 and 14, Erickson additionally teaches an input indicating which one of area of the plurality of areas has least banding (column 17 lines 55-59) and over-feeding and under-feeding (column 3 lines 21-26).

Regarding claim 15, Erickson additionally teaches the printer parts but fails to specify that the test pattern is stored in memory. However, for purpose of this evaluation the test pattern is

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considered inherent since it is customary in the industry to store test patterns in the tested device itself.

6. Claims 1-3, 7, 13-15 are rejected under 35 U.S.C. 102(b) as being anticipated by the routines currently used in manufacturing to align, calibrate, or adjust printer head assemblies. The applicants have not provided any background as to how the invention compares with these routines. Banding artifacts are very well known in the art. Printheads have to be aligned during normal assembly and the alignment of printers with multiple printheads is a crucial part of the assembly process. The examiner would expect that these claims (and perhaps even the calibration process disclosed) currently read on such routines that are based on the simple calibration procedure of: providing a test signal input equivalent to a test plot and printing out the result; varying the parameter of interest to observe the result at varying values of the parameter setting; and, selecting the best result and setting the assembly to that setting.

The examiner considers that these claims merely articulate the well known steps of calibrating a device (as related to a printhead parameter) or some obvious derivation such as an automated test process. Claims for the calibration procedure of a known parameter using only these basic steps would not justify a patent since they merely recite the steps that would be obvious to any laboratory technician. If the applicants wish to proceed with claims addressing only the calibration process itself and by itself they are expected to explain why they consider their claim language as well as this procedure in general to be differentiating from the generic

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calibration process. In their response the applicants are also requested to address current calibration or alignment procedures used in the industry.

An example that demonstrates the examiner's position is contained in US Patent 5,592,202 to Erickson (see Figure 13, as described also in specification column 17 beginning at line 13) and US Patent 5,889,534 to Johnson *et al* (see figure 15A).

7. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 5,347,369 to Harrington.

Harrington teaches a method for calibrating a print control parameter to avoid a banding artifact on a printed media sheet, comprising the steps of: printing on a media sheet a test plot having a plurality of areas (see figure 1), each area being a common image printed using a different value of the print control parameter (column 2 lines 13-16, note the print control parameter is gray level); receiving an input indicating which one area of the plurality of areas exhibits either the absence of or the least amount of the banding artifact as perceived by a person viewing the media (column 2 line 18); and, setting the print control parameter to the value corresponding to the indicated one area (column 2 lines 24-27). Note also that the "banding artifact" is the same type as suggested in applicants' specification page 3 in which the artifact appears because of a banding in the test pattern and that the artifact avoided is an incorrect TRC (column 1 lines 38-40).

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Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 8,16,17 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,592,202 to Erickson as applied to claims 1,7, and 15 above, and further in view of US Patent 5,627,572 to Harrington *et al* and further in view of US Patent 5,321,437 to Heeren. Erickson fails to teach the storing of maintenance procedures but Harrington teaches the storing of maintenance algorithms for specific components (see abstract). Heeren teaches the detection and correction due to wear of printer drive components. Therefore it would have been obvious at the time of the invention for a person having ordinary skill in the art to modify Erickson to store a maintenance algorithm for linefeed error parameter correction because: Harrington is evidence that it was known to store maintenance algorithms for specific components to obtain optimum maintenance (column 1 line 59); Heeren is evidence that it was known in the art to correct for wear in printer drive components; and an inventor would be motivated to modify Erickson to store a maintenance algorithm for linefeed error parameter correction in order to obtain optimum maintenance to these components.

10. Claims 4-6, 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over routines currently used in manufacturing to align, calibrate, or adjust printer head assemblies as applied to

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claims 1 and 7 above, and further in view of US Patent 4,734,868 to DeLacy and US Patent 5,717,977 to Suzuki *et al.* The currently used manufacturing routines teach a generic calibration method for banding parameters but fail to teach making the calibration for different media types. However, DeLacy (column 3 lines 1-3) demonstrates that banding parameters are sensitive to media type. Suzuki teaches the incorporation of temporary settings for different media. Therefore, it would have been obvious at the time of the invention for a person having ordinary skill in the art to modify the routines currently used in manufacturing to align, calibrate, or adjust printer head assemblies to additionally account for various media types because: DeLacy is evidence that it was known that other media would change the banding parameter adjustments; Suzuki is evidence that it was known to make temporary setting changes to accommodate different media; allowing calibration for more than one media type and temporary setting changes would add flexibility to a printer; and, an inventor would be motivated to modify the prior art routines to accommodate additional media types because he would want to increase flexibility. Regarding the details in the claims of making a separate calibration for the various media, the determination of a function based on media type, and the interpolation of settings, these techniques are well known in the art of calibration. The applicant does not disclose any specific techniques that could be considered to advance the art of calibration.

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Conclusion

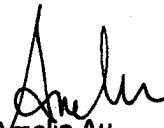
The applicant should note that the series of claims involving changes made to settings due to media type and the series of claims involving the storage of a maintenance schedule are both artificial limitations. The concept of changing settings for media type does not depend upon a specific process of calibration or measurement but only on the existence of such data regardless of how it is obtained. The same statement applies for a maintenance schedule stored in memory. Accordingly, the examiner considers that the claims actually address three separate inventions and the applicant will be required to elect which of these three inventions he chooses to prosecute.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frederick E. Cooperrider whose telephone number is (703) 305-2918. The examiner can normally be reached on Tuesday - Friday from 6:30 AM - 4:00 PM and on alternate Mondays from 6:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au, can be reached on (703) 308 - 6604. The fax phone number for the organization where this application is assigned is (703) 306 - 5406 or (703) 308 - 5397.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305 - 3800/4700.

fec
June 27, 1999


Amelia Au
Supervisory Patent Examiner
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